THE AMERICAN ARCHITECT AND BUILDING NEWS.

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WHEN the interests of charity, political economy, and finance are equally subserved by the same process, one of the ideal conditions of society may be said to have been reached, and one of the most difficult problems in social science solved. Hitherto these interests have been antagonistic; but by the strange complications of modern society, it seems to be reserved for the architect to accomplish a happy reconciliation; and this not in the exercise of his function as an artist, *decori urbium*, but in the exercise of the less glorious but certainly no less important duty devolving upon him as a practical man of science, adapting small means to large ends, *usui civium*. The charity we refer to is, in fact, that kind which begins at home, — in the improvement of the dwellings of the poor, and thereby in the creation of that sense of self-respect among the occupants which is the surest safeguard against crime. It is, moreover, that most effective form of charity which blesses him that gives and him that takes; which pays capital, not in good conscience alone, but in assured and regular dividends, and pays labor or poverty in conferring a sense of comfortable and wholesome independence. Doubtless our fellow-citizens of Philadelphia have carried this practical form of charity to more satisfactory results than have been reached elsewhere, — certainly in this country. Their efforts have been directed, as is well known, towards the building of independent houses for families at low cost, and subject to rents sufficient to pay a proper interest on the investments, with a balance appropriated to the gradual extinguishment of the debt in each case. When this object is attained, of course the house becomes the property of the occupant. He is encouraged by this means to habits of thrift, economy, and self-respect. His savings, instead of being deposited in savings banks, which have hitherto been of bad reputation in that neighborhood, are invested in real estate; and he thus acquires a new interest in the public welfare, and becomes a more responsible citizen. In New York we believe nothing has been accomplished in this direction as yet. Mr. Stewart's costly home for the working-girls in that city, now approaching completion, is a magnificent but ill-directed benevolence, which, if bestowed in a manner to create independent homes instead of a palace for the poor, would have apparently been far more consistent with the requirements of sound political economy, as well as of the wisest charity, and much more in accordance with those business principles to which is attributed the creation of his colossal fortune. Mr. Alfred H. White, an intelligent citizen of Brooklyn, has erected in that city certain "improved dwellings" of this class, which, in respect to convenience, economy, and sanitary arrangements, are said to be excellent; and, what is more to the purpose, they are paying in their rentals twelve per cent on the cost of land and buildings.

MR. CHARLES BARRY, president of the Royal Institute of British Architects, has just erected three blocks of buildings for artisans and laborers, under the auspices of the Metropolitan Association for Improving the Condition of the Industrial Classes of London. This is a building association, which in its thirty-third report, lately issued, has declared its profits for the year to be $35,000, authorizing a dividend of five per cent to the stockholders, and leaving a handsome fund for the continuous prosecution of its benevolent enterprises. The buildings referred to were opened by the Prime Minister and several members of his cabinet, and the proceedings on this occasion were printed by all the leading journals of London. In another column we insert extracts from the English *Architect*, giving a description of these buildings. The present government of England claim to have established, as a part of their political policy, the improvement of dwellings of this class. So far as we can learn, however, this policy — although the declaration of any public policy whatever in this direction is in itself a very significant fact — has taken shape merely in an act passed in 1875, allowing (not requiring) the clearing of such areas in large towns as are occupied by overcrowded houses, so that buildings constructed with due regard to the needs of civilization, as now distinctly defined by experience and sanitary science, may be erected thereon. So far but few towns have availed themselves of the option; and in the metropolis the act seems hitherto to have been ineffective, although the association to which we have referred has just made application to the Board of Works for certain sites under the act. It appears from the record, that the death-rate per 1,000 has, in the improved districts, fallen from 22 to 15, and the moral health has of course improved in even greater proportion. It is important to note, however, that all the houses built by all the societies in London for the last twenty years, including, of course, those erected under the Peabody fund, accommodate only 40,000. This does not keep pace even with the natural increase of the population in that city, which is 40,000 annually. The *Saturday Review* asserts that it would require an expenditure of $250,000,000 to make good the overcrowded districts in the metropolis.

THE official reports of the foreign representatives concerning the international exhibition of the arts and industries at Philadelphia are now beginning to appear; and those which have fallen under our observation present a very flattering view of the progress of the United States in all branches of manufactures. In the practical arts, from watch-making to lock-making, from cotton fabrics to machinery of all kinds, we find that we are already considered dangerous rivals of the older countries; and in not a few respects that we are in advance of the rest of the world. But so far as we are concerned, it is evident that the main advantages to be reaped from the Exhibition are not contained in the acknowledgment of our excellences in a few things, but in the knowledge of our failures and shortcomings in many things. We need to be aroused to a keen sense of our deficiencies; and we shall make the best use of the occasion, if, instead of congratulating ourselves on our successes, we take pains to discover how and why we are inferior to other civilized nations. The first exhibition in Hyde Park justified itself to the English people by the disclosure it made of their very secondary position in all those works of the hand and brain into which the element of art or taste entered as an essential feature. What they have since accomplished to remedy these defects, under the spur of the painful contrasts then first presented to them, constitutes perhaps the most remarkable chapter in the history of art. In ornamental fabrics, wall-papers, pottery, decorative metal-work, wood and stone carving, furniture, and stained glass, they are already exceeded by no other nation; in some of these respects they are without a rival. If we could in the same way make a good use of our evident deficiencies in the education of art, as shown in the instructive contrasts at Philadelphia, we too might accomplish a new renaissance. It may perhaps be accepted as a hopeful local sign, that so many examples of foreign artistic workmanship remain in the Pennsylvania Museum of Industrial Art. The influence of such collections illustrating the application of art to manufactures, if they could be made in every great city of the Union, would be incalculable. Our mechanics sadly need models of good industrial art. The capacity and the desire to improve are useless without the instruction and incentive of examples. In the absence

of such incentives, — the fruits, moreover, of the training of hand and eye in public drawing-schools not having yet had time to ripen, — every architect has found by experience that the attempt to introduce artistic feeling in mechanical work is disheartening to the last degree. The highest aim of the American artisan is perfection of mechanical finish, accuracy and closeness of joints, neatness of workmanship, smoothness of surface: these are qualities which he can understand; and no mechanic in the world can surpass him in these respects. But if he is told that in certain work neatness and smoothness are to be subordinated to vigor and expression; that tool-marks are not to be concealed; that the characteristics of one material are not to be imitated in another; that the architect would prefer to have his design of ornament followed with feeling and sympathy rather than imitated with accuracy and mechanical precision, — he cannot understand; and his work continues to be laboriously filed and sandpapered and puttied until the expression of hand-work has entirely disappeared, and the result is as if cast in a mould.

IT was the hope of the architects of Boston to be able to exhibit in the Museum a creditable collection of artistic iron-work obtained in response to their invitation to the smiths. But the single specimen submitted by them, although characteristic and interesting in its way, was not of a nature to benefit art by its exposition. It was executed by a patient and careful workman, skilled in mechanical processes; but it possessed few qualities to distinguish it from cast iron or from a wooden model, and none which properly set forth and excused the labor which had evidently been bestowed upon it. The only quality wanting to the workman was artistic knowledge; and this, with less labor and even less mechanical skill, could have produced a work of art. We are convinced that if the Museum had contained a dozen pertinent examples of artistic work in iron, large or small, the response of the intelligent smiths would have been far larger, and there would have been opened to them a new field, not of profit only, but of that kind of enjoyment which the artist experiences in creating expression out of inanimate things. Photographs, drawings, and descriptions, such as were furnished in our number of March 24 with the especial object of instruction in view, are nearly useless to the mechanic; he needs to see good work, with the tool-marks and hand-marks upon it, and the best results cannot fail to follow. The loan exhibition at the Philadelphia Museum contains grills, hinges, altar-rails, standards, fire-dogs, and other objects in wrought-iron, by English workmen, together with a few examples of earlier art, such as a pair of Florentine andirons of the sixteenth century. Our Philadelphia brethren have thus an excellent opportunity to secure good work from their smiths. If properly encouraged and directed, every intelligent workman is prompt to learn from example; and if, with the advantages of a museum properly equipped with objects of industrial art, he does not outgrow the blight thrown upon his craft-spirit by the prevalence of poor castings and sheet-iron work, the blame may in large measure rest upon the architects who are in position to require a fundamental improvement. Let the profession, then, take the first step forward, and urge upon the trustees and curators of museums the great and obvious importance of making collections for the improvement of industrial art. In every intelligent community the small amount of money needed to obtain such a collection is readily available.

THE Boston Chapter of the American Institute of Architects, in its sessions of 1876 and 1877, with a view to the encouragement of the higher qualities of industrial arts, established a series of prizes, and invited modellers and workers in iron respectively to compete. To the former they proposed an ornamented frieze of certain dimensions, and to the latter an iron strap-hinge, wrought by the forge and hand into decorative form. To these invitations, disseminated by advertisements and by personal appeals, the modellers responded with encouraging alacrity and enthusiasm. In this department there were about twenty competitors; and of these at least half presented models of such excellence in design and workmanship, that the judges were seriously embarrassed in making choice. There were two figure-subjects, and several arabesques; the rest were compositions of foliage and animals. The prize was awarded to Mr. John Evans of Boston, for a foliated frieze in high relief, with birds and animals in the Gothic manner; but there were several other friezes of excellence so nearly equal to his, and in some respects indeed superior, that it was evident that among the two or three best examples the only distinction to be made depended not so much upon composition and treatment (the essential qualities) as upon choice of subject. The best of these competitors, however, had learned their art in the English schools of design, and practised under English architects before they came to this country. It was not a competition of Americans brought up under native influences, although it was not without a purely native element, which was more than respectable even in this dangerous comparison. In so far the Chapter considered that its little enterprise was justified by the event; and the competitors probably have no reason to regret labors which have served to make their qualities better known among those best able to appreciate and employ them. By the kind permission of the Trustees of the Boston Museum of Fine Arts, the best of the works submitted in this competition remain on public exhibition in one of their galleries, and there have, for several months, attracted a great deal of well-merited attention.

THE arrangements for the decoration of the new Manchester Town Hall in England by mural paintings of a high order are a most satisfactory and encouraging sign of the gradual restoration to painting of its original, natural, and noblest function of adorning architectural works. We are glad to learn that the scheme of Mr. Waterhouse, the architect, and his selection of artists have been approved by the city council. The history of Manchester is to be illustrated on the panels of the great hall by Messrs. F. Madox Brown and F. J. Shields; the panels of the banqueting-room are to be intrusted to Mr. W. J. Yeams; those of the reception-room to Mr. P. Calderon; the walls of the mayor's room are to be decorated with symbols of wealth, industry, and social order, by Mr. W. B. Richmond; and those of the ante-room by Mr. Walter Crane, his subjects setting forth the relations of Manchester with India. The amount of money available for this purpose is about $45,000. For this comparatively small sum this great public monument is to receive its most appropriate and dignified decoration. The interests of art are materially advanced by this most auspicious event. When shall we too see the gaping wall-spaces of our public halls so nobly treated? When we consider that the cost of the usual jobbery of vulgar marbles and redundant carvings in the furniture and equipments of our city halls, state houses, and other public places, would be sufficient to cover their walls with the most noble and effective of all decorations, we certainly have need to regret our wasted opportunities, and to pray for those better times when art, which enlightens and refines, shall have its due place in our public works before the luxury which ministers simply to vanity and ostentation.

MR. JOHN DIXON, to whose enterprise is due the execution of the interesting work of removing to London the prostrate obelisk known as "Cleopatra's Needle," having observed that an antique model obelisk in the Museum of Madrid rested upon four bronze feet, has caused the foundations of the standing obelisk in the immediate neighborhood of the prostrate one to be uncovered. This excavation has revealed the curious fact that these twin monoliths each rested formerly upon four "bronze crabs," which thus lifted them eight inches clear above the pedestal. One of these "crabs" still remained in position, the open space at some period of spoliation and defacement having been filled in with coarse masonry. The bronze, though mutilated, is stamped with legible inscriptions in Greek and Latin as follows: "In the eighth year of Cæsar Augustus, Barbarus, prefect of Egypt, caused this obelisk to be erected by the architect Pontius." This date corresponds with the year 22 B.C., when the two ancient obelisks were triumphantly re-erected in front of the temple of Cæsar Augustus at Alexandria. The shaft which is about to be moved to England bears upon the corners of its base certain notches, hitherto unexplained, but which correspond with the position of the bronzes.

ARCHITECTS' COMPENSATION.

IN considering last week the theory of an architect's compensation, we mentioned incidentally a few of the circumstances which tell in favor of the existing system. We did not intend to enter on a full discussion of the relative advantages of the different methods of payment that might have been adopted, nor do we now. Since, however, there is a tendency to expect from business analogy that an architect's payment should be adjusted with precision to his work, and since one often hears a different system advocated, — commonly one of payment by time, — it is perhaps worth while to consider the merits of the case a little more in detail.

The simplicity, openness, and easy application of the accepted method are apparent enough. The objections which may be raised to it are, that it is a loose method; that the client does not know how much work he is getting for his money; that there is no pretence even of a careful adjustment of the payment to the labor performed; it is argued too, that an architect should not have the opportunity to increase his own compensation by increasing his client's expenditure, as he may if he is paid by a percentage. To the first of these objections, — the unfairness of an unadjusted compensation, — it may be answered, that there is no unfairness where there is no pretence of adjustment. The unfairness would be in a system that assumed to adjust itself, and then did not do so; and here, in our opinion, is just where a fatal weakness would be found in a method of payment by time. The client really need not concern himself whether he gets as much labor out of his architect as another, so long as he gets his money's worth in the value of the service. It being once understood that the payment is for the service and not for the labor, as it is in the case of a physician's or a lawyer's fee, and that the architect and not the client is to take the risk of the amount of labor, the question of unfairness on this account is at once eliminated from any particular case. There only remains the general question for the community, whether on the whole the fee paid for architectural service is fixed at the right point as a fit equivalent in the long run; but this is a question of amount and not of method.

As for the objection that the system of percentages makes it the architect's pecuniary interest to increase the cost of his client's building, the objection certainly applies so far as it has force. But dangers occur with all agents to whom affairs of importance are intrusted to be conducted at their discretion. The client, since he cannot intelligently direct the architect's work, cannot get the full benefit of it without allowing him discretion in carrying it on. The safety of such a relation of course depends upon the standard of character and fidelity that obtains among architects. Their temptation to enlarge their fees by increasing their client's expenditures is analogous to that which a lawyer has to lead his client into litigation or the physician to prolong his patient's disorder; and probably the proportion of such bad practice does not much differ in the three professions. There will, of course, be dishonorable practitioners in every community; but the client who is himself scrupulous will generally find it practicable to avoid them. With an architect he is not less protected than with most professional agents, since he can fix the limit of his expenditure if he will; and the architect not only finds it difficult to involve him in expenses which he absolutely refuses to undertake, but exposes himself to be punished if he does so. Moreover, though the consequences might not be so disastrous to the client, the opportunities to the architect to increase his fees would be quite as great under any system of graduated fees. It is, at least, no harder to increase or misrepresent the time spent on work, than to enhance the cost of it; and the danger would not only be more insidious to the architect, but more inscrutable to the client. It is impossible, in fact, by any law or system to guard against the abuse of confidence by confidential agents. The thing which a prudent man or a prudent community will naturally do is to refrain from delegating authority except for an adequate advantage to be gained by it, and to establish as complete accountability for it as possible.

When we come to consider the convenience and precision of a payment by time for architectural service, it is not easy to see how it commends itself. It would be exceedingly laborious for an architect to keep a close account of all the time he gives to each of a number of undertakings which he may have going on together; and to justify it to his client would be impossible. No allowance could be made for many of the things which add to an architect's labor, no computation of a great deal of the time it demands from him. But if such a computation cannot be accurate, it loses all its value. There is no argument but its precision in favor of undertaking a computation so laborious. A minute and particular charge is no more reasonable than a general one if it is not more accurate; nor more satisfactory to the client, if it cannot be better substantiated.

A still more logically convincing argument, though not more practical, is, that the time is not the only nor even the chief element of value in the architect's labor. After allowance was made with as much precision as possible for the time he had directly given to his work, the value of his conception would remain unrated. This conception may come in a moment, or it may be wrought out by slow study. The most brilliant and precious idea that ever architect conceived, if it flashed upon him at once, as a valuable conception often will, would under a system of payment by time be worth nothing to him, while an inferior one at which he had arrived after long effort would bring a recompense. What astronomers call the personal equation here comes in to modify the result, and defies computation. Quickness of conception, whether it be the result of natural endowment or of trained skill, should enure to the benefit of its possessor, instead of stripping him of his compensation because it saves his labor. Quickness and readiness, ability to judge of a problem and furnish promptly a satisfactory solution of it, are the result and index of training and experience, — conditions which, in all walks of life, are held to enhance, not diminish, the value of a man's work. These cannot be allowed for in payment by time, unless in payment graduated in every case to the individual, such as cannot be provided by a general system.

Here we come to what is after all the real essence of the question. Time-payment is unsuitable, not only because it is inconvenient and lacks the precision that it ought to have, but because time is here no measure of value at all. Mechanical or routine labor, in which one good workman's work does not greatly differ from another, may with propriety as well as with convenience be paid for in wages. A man may be expected to turn out a known amount of it in a fixed time, so that the master who is to pay for it in days' wages can estimate beforehand what it will cost him. What is more essential, the standard for it is perfectly understood, so that it is known beforehand what it will be or ought to be. But for artistic or professional work there is no fixed standard, and its character cannot be foretold. The personal element enters into it too largely for this. Its value lies in the professional skill and judgment of the practitioner. When an important and difficult question is carried to a lawyer for advice, if his special study has qualified him to give a decisive answer to it at once, it would not do to fix the payment by the time he occupies in answering it. If his answer is prompt, it is, in fact, the more valuable, since it saves his client's time; and his charge is grounded on the importance of the question. So it is with the architect. Although he does a certain amount of mechanical or purely business work, for which he might, if it stood apart, be properly paid by time, the essential and characteristic part of his service is a compound of professional judgment, of the inventive faculty, natural and acquired, and of artistic power. The workings of these are not to be computed by time, and can only be valued by the importance of the result. If an inventor offers for sale some new contrivance, the purchaser of the patent-right inquires what it is worth now that it is perfected, not how much time did he spend upon it; — but every work of an architect is an invention. It would be absurd for the purchaser of a painter's sketch to concern himself with the time it took the painter to make it: he only asks what is its value as a work of art. But the architect's design is, in theory at least, a work of art: the skill and the inspiration of it give it its value, as they do to the painter's sketch. If it were possible to assign a value depending on recognized ability to an architect's work, as the natural selection of the world does to a painter's, it might be in keeping with the nature of it; but the fact that the business element is so inti-

mately associated with the characteristic part of his labor, requires a business-like system of payment; and so we come back again to the importance of his service to the client, as the only applicable measure of his compensation. Though even here an exact measure is a thing not to be attained, still, in a general way, the importance to the client of having the work satisfactorily done may be said to be in the ratio of the cost of it. This gives the necessary assurance to the client that he gets a return for his money; to the architect that his most important commissions will pay him most: while it saves both of them from a great amount of laborious and unrewarding computation of incomputable things, as well as from endless occasions for dispute.

SANITARY ENGINEERING.[1]

III.

MR. DENTON, in referring to the sites of dwellings, quotes from Bacon: "He who builds a fair house upon an ill seat committeth himself to prison," and says, "the engineer has power by appropriate drainage to render a subsoil which is naturally wet and polluted, both dry and wholesome." This is confirmed by the following table from Mr. Simons's report of 1868, showing that in the following towns the death-rate from consumption was reduced by the drainage of the ground, in the percentage indicated by the table:—

Salisbury	49	Cheltenham	26
Ely	47	Bristol	22
Rugby	43	Dover	20
Banbury	41	Warwick	19
Worthing	36	Croydon	17
Leicester	32	Cardiff	17
Macclesfield	31	Merthyr	11
Newport (Monmouth)	32		

The statement made by Mr. Rawlinson that sewers and house drains, when practicable, "*should be made to act* as land drains," Mr. Denton strongly condemns; and, in our opinion, he is quite right in doing so.

Concerning Mr. Denton's details of house-drainage, and of the disposal of the liquid outflow of houses, we cannot speak in such terms of commendation as are elicited by the general character of his book. Much space is taken up with illustrations of water-closets, traps, and other details of plumbing, not apparently with the chief purpose of illustrating principles, but with a view to make a bigger book and to add to the show of pictures. It looks as though the cuts used by manufacturers in their advertising circulars had been borrowed for use here; and after reading the whole section on water-closets, the architect or engineer would get only such information as might have been given in one or two pages of description and a single diagram. This is not a serious fault, but it has somewhat the character of "padding."

American practitioners must not be misled by the advice which this book, in common with most English writings on the subject, contains, so far as to adopt the strongly urged practice of placing the soil-pipe outside of the building, and of constructing water-closets against the exterior walls or in small projections. This is a good method in climates like that of England, where frost is little to be feared; but it is an accepted principle here that summer houses constructed on this principle cannot be occupied in winter without great annoyance from the freezing of pipes. In our view, the danger of the escape of sewer-gas into the house if soil-pipes and closets are centrally located is greatly overrated; always assuming that the material and joints of the soil-pipe are what they should be. A properly fixed soil-pipe of iron, with well-made lead joints, leading from an open top above the roof down through the house and out through the foundation wall, with a good current of air passing through it, is as sure to perform its office, without danger of changing the air of the house, as though it were carried up the outside of the building.

In treating of the disposal of the sewage of country houses or public institutions having a great area of land attached, factories, villages, etc., Mr. Denton fully indorses all that has been said in these columns on the value of subsoil and surface irrigation as a means of disinfection. His commendation of Field's flush-tank is unreserved. On one point it seems to us he is not entirely right: subsoil irrigation, so far as the growth of overlying crops is concerned, is regarded as supplying its moisture at the roots, to be removed by evaporation,—comparing it with the now common practice of watering potted plants by filling with water the saucers in which the pots stand. The cases are not parallel. The water in the saucer of the flower-pot stands at but little distance from the *surface of the earth* in the pot until removed by capillary attraction and evaporation. Water delivered into the earth from irrigation drains settles away into the ground, its surplus being removed by gravitation, and its fertilizing impurities are retained for the uses of vegetation or oxidized by the air in the soil.

[1] Sanitary Engineering: a series of lectures delivered before the School of Military Engineering, at Chatham, Eng., by J. Bailey Denton, F. G. S. M. Inst. C. E., etc. E. and F. N. Spon, London and New York.

Concerning the use of the systems of deposition and chemical precipitation, as applicable to isolated dwellings, our author says, "At the least, they clarify without purifying the liquid effluent. As the time is at hand when clarification will not be regarded as the only proof of fitness required for the admission of liquids into running streams, it will be obvious that no occupant of a dwelling would be justified in adopting either subsidence or precipitation."

Cesspools he regards as "evils of the worst order." "If these are shallow, then the cesspool and its unseen outpourings, though relieving the occupier of the dwelling of considerable trouble for a time, will remain liable to all the objections to which common privy cesspits are admittedly subject. The 'dumb-wells' which the larger cesspools become have been adopted in a great number of places where the sanitary authorities of urban and rural districts have been unable or unwilling to cope with the disposal of the sewage of their districts; and wherever, as I have said, the ground water is shallow, the creation of a concentrated evil of the worst description has been the consequence. In instances where the subsoil is of a character not to absorb the sewage—such as a clay soil—as it has escaped from the cesspool, the occupier has been compelled to lift it to the surface, and distribute it by hand or hose over grass, arable, or garden land near at hand, or cast it away to a distance. This treatment is subject, however, to the irregularity attending all manual work, and generally results in a nuisance."

Mr. Denton was the engineer of the sewage disposal works at Merthyr Tydvil; and he points with satisfaction at the continued success of the system of intermittent downward filtration at that place. He gives it as a general rule for practice, that where only a limited area is at command, an allowance of one acre per thousand persons "will be sufficient for the perfect cleansing of the liquid refuse discharged, while some return in the shape of vegetables from the land so used may be obtained. If, however, the surface be unlimited, the sewage may be applied by way of surface irrigation in the proportion of one acre for one hundred persons, with the probability of a larger return from the vegetables grown than in the other case. Any quantity of land between these two extremes which the circumstances may prescribe may be utilized with satisfactory effect."

Drains passing under dwellings should run completely through from outside to outside, with a ventilating opening at each end, so as to secure the passage of air from one end to the other. This method is based upon sound principles, applicable in all cases where no danger is to be feared from frost, and where there is no danger that the openings will deliver foul odors at points where they may become objectionable.

Considerable space is given to the description and illustration of systems for "disinfecting" the soil-pipe and sewer by an open grating outside of the house wall. In our view, this system is wrong in principle, as it is unnecessary. As above stated, the soil-pipe should be so tight as to allow no possibility of the escape of its gaseous contents in the house, and both sewer and soil-pipe should be so ventilated that there can be no danger of the formation of poisonous gases within them.

The use of the earth-closet for circumstances to which it is applicable is strongly recommended; and the usual unsatisfactory and inconclusive dissertation upon the vexed and undetermined subject of ventilation is given.

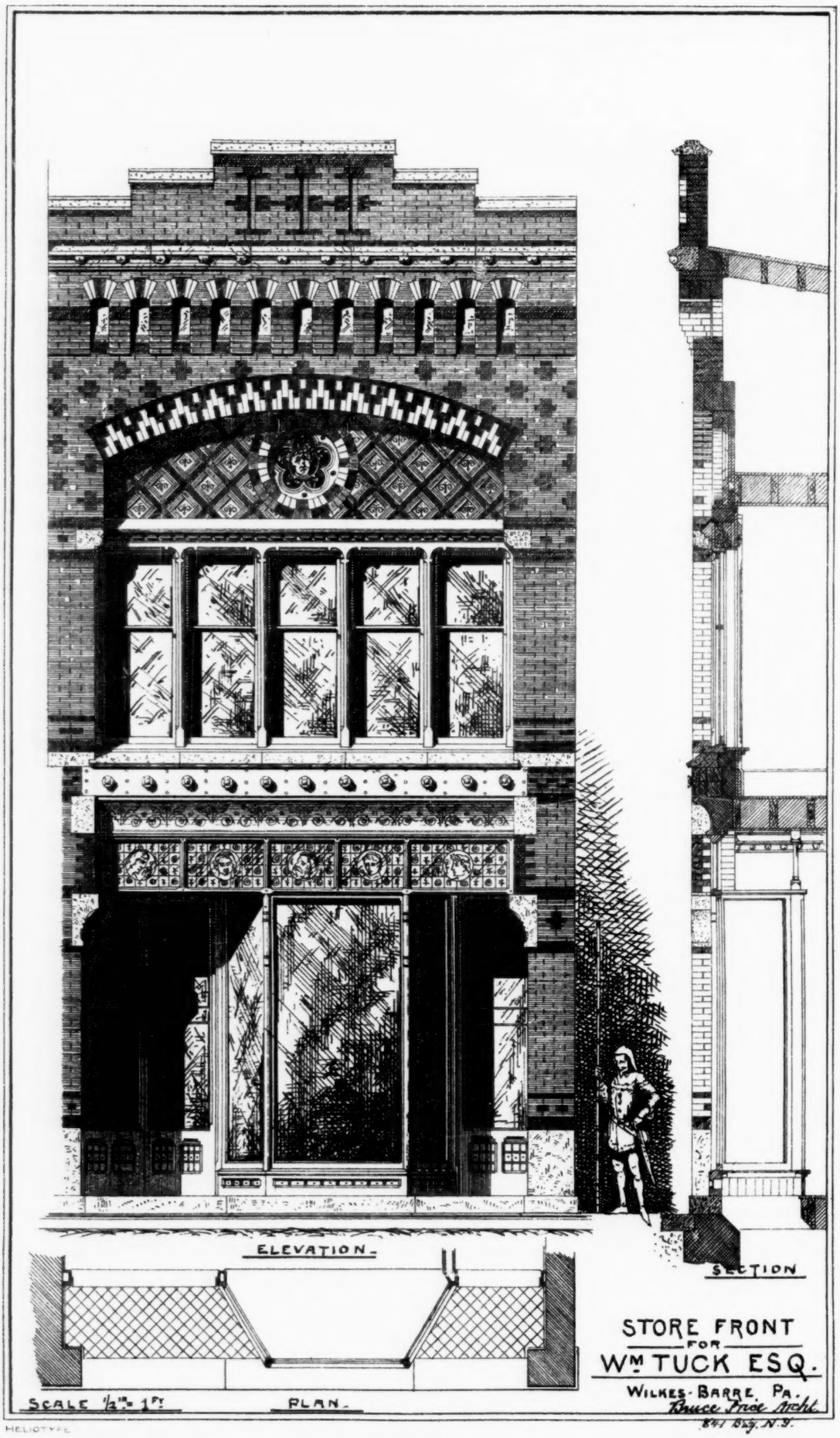
Concerning the water supply of country houses not much is said that is new or important, though this section is replete with information as to detail, and well worthy of the study of professional men.

THE ILLUSTRATIONS.

CHURCH OF OUR LADY OF PERPETUAL HELP, BOSTON, MASS. MR. WILLIAM SCHICKEL, ARCHITECT.

(346 Broadway, New York, N.Y.)

THE work on the Church of our Lady of Perpetual Help was begun in the spring of 1875, and at the present rate of progress it will be ready for occupation by the end of the current year, although the towers will not be carried to their full height for some time thereafter. The style is Romanesque of the latter end of the twelfth century. In form it is a basilica with transepts. The extreme dimensions are, from front portal to rear of apse, 215 feet, and across the church at the transepts, 115 feet. The body of the church proper has a width of 78 feet. The material of the exterior will be Roxbury stone with Quincy granite wrought-work. The nave has a width of 40 feet, and a height in the clear of 70 feet. At the intersection of the nave and transepts, an octagonal dome will rise to an interior height of 110 feet. In plan, the lower story, entering from the rear of the church at the street level, will be used as a chapel for confessionals and other church uses. The height here is 18 feet, with a seating capacity of 1,500. The body of the church above will seat 2,000, while the full capacity will far exceed this. The arcades and clerestory walls will be carried on polished Scotch and Quincy granite columns, with caps and bases of Dorchester stone. Of these columns there are thirty-four in all. The tracery and rose windows will also be wrought in Dorchester stone. The sanctuary is semicircular in plan, and


ELEVATION.
SECTION
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SCALE 1/2" = 1 Ft
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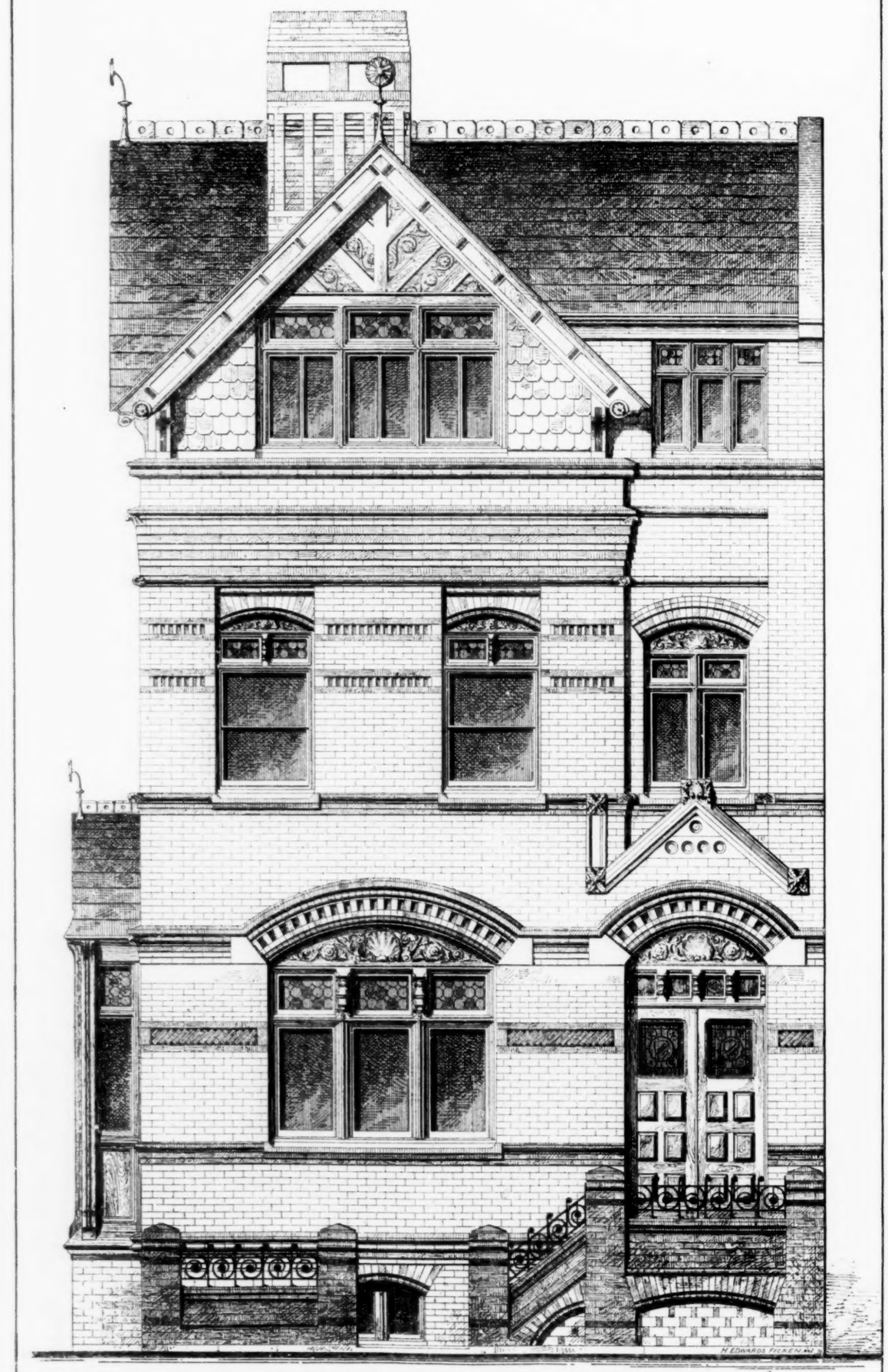
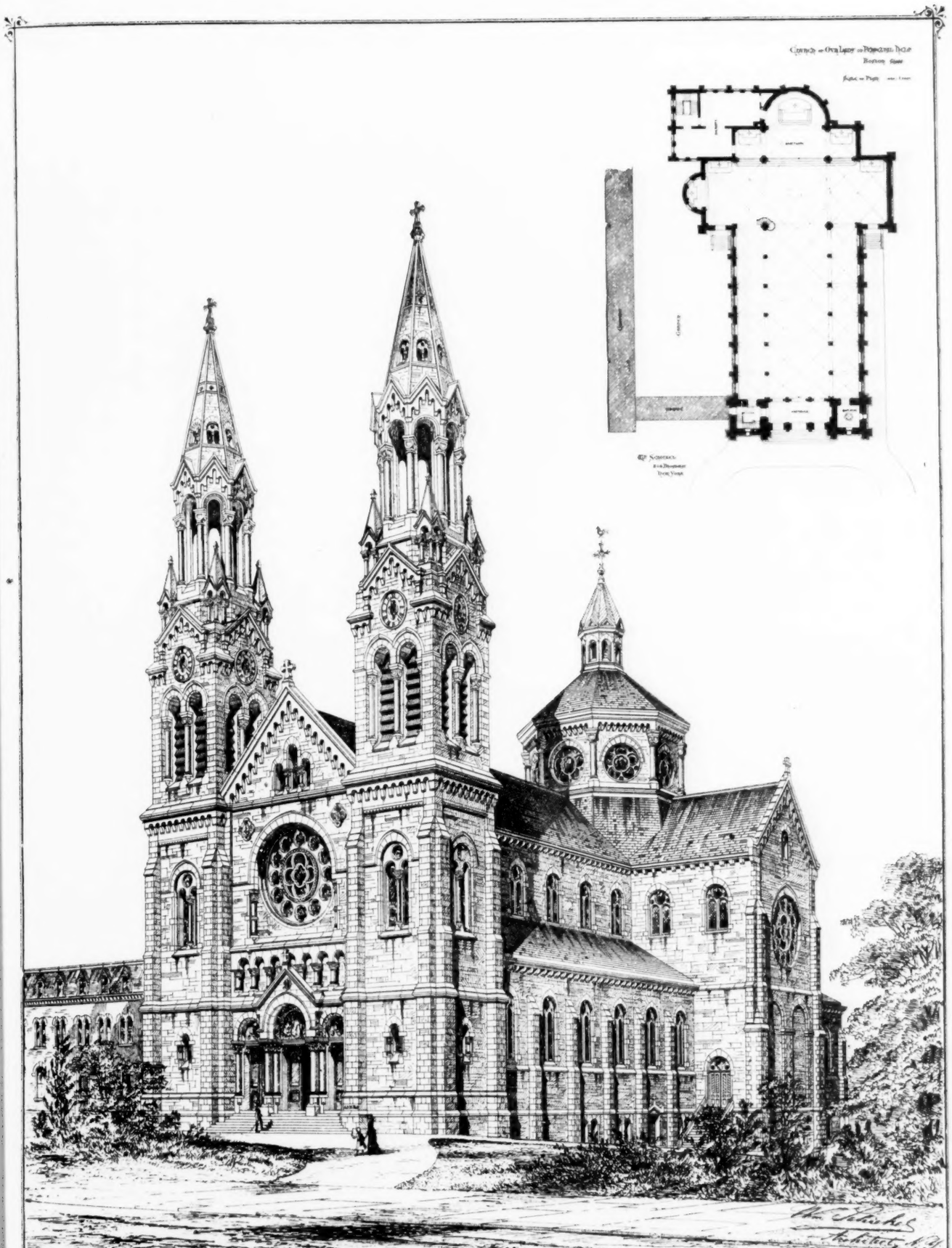
HELIOTYPE



HELIOTYPE

Front Elevation Of House For Mr. R. C. Pruyn, Albany, N. Y.

POTTER & ROBERTSON, ARCHITECTS, NEW YORK.



CHURCH of OUR LADY of PERPETUAL HELP, Boston, Mass.

HELIOTYPE.

DESIGN FOR A
COUNTRY HOUSE FOR THOMAS DUMN ESQ. NEWPORT R.I.
CHARLES F. MC KIM, ARCH'T.
L.S. IPSEN DEL.
GROUND PLAN
A PARLOR
B LIBRARY
C HALL
D DINING ROOM
E BUTLERS PANTRY
F KITCHEN
G LAUNDRY
H VESTIBULE
I LAVATORY
K CARRIAGE HOUSE
L STALLS
M HARNESS ROOM
N SHOP
O COW STABLE
P LIVING ROOMS

is forty feet in diameter. In the western transept, a lady chapel will be arranged. Seven altars in all will be found on this church floor, while beneath the aisles additional alcoves for confessors are arranged. It is to be a mission church, under charge of the Redemptorist fathers; hence the union of great seating accommodation with many confessionals. The triforium will be real, that is, will form a veritable passage about the church, passing around the dome, and also about the apse. A complete circuit of the church may be made by this passage under the aisle-roof. Above are the clerestory windows, as shown in the drawing. To the cross at the front apex of the nave-roof, the height is 106 feet, and to the top of the dome 154 feet. This dome is double, an exterior one of metal, with an interior wooden construction. The apse will derive its light through the windows of the dome. In the rear of the church, adjoining the apse, will be built a double-story building containing quarters for the sacristy and library of the priesthood attached to the church. The interior throughout will be finished in stucco tinted to imitate Dorchester stone, but not lined off. About the apse, and on the wall over the sanctuary arch, will be fresco paintings, on a gold background, of the Transfiguration, and other incidents from the life of Christ. Beyond these, but little color will be employed. The floors are to be tiled with marble, and the windows glazed with cathedral glass in rich designs. The front towers will rise 200 feet. The cost of the finished structure will be $300,000.

DESIGN FOR A COUNTRY HOUSE FOR THOMAS DUNN, ESQ., NEWPORT, R.I. MR. C. F. McKIM, ARCHITECT.

(57 Broadway, New York, N.Y.)

HOUSE FOR MR. R. C. PRUYN, ALBANY, N.Y. MESSRS. POTTER AND ROBERTSON, ARCHITECTS.

(No. 52 William Street, New York, N.Y.)

This house, now almost ready for occupancy, is built entirely of brick, with the exception of such constructional parts as required the use of stone. Collaburgh brick in two tints of red, and moulded as shown, has been used for the face-work. The carving over the door and windows is of wood. In the gables the ornamental work is cement stamped while wet, the design being traced in by hand and die. Rolled cathedral glass, leaded in bull's-eye pattern, is inserted in the heads of the windows. The interior is finished in hard woods.

STORE AT WILKESBARRE, PENN. MR. BRUCE PRICE, ARCHITECT.

(841 Broadway, New York, N.Y.)

THIS design for a drug store was carried out precisely as the drawing shows. It was built last spring, of Baltimore pressed brick and Ohio stone. The stained glass transoms were furnished by Samuel West, Boston.

WOOD STAINING.

THE practice of staining woods is much less common in America and England than on the Continent, where workmen, familiar with the different washes, produce the most delicate tones of color and shade. Wood is often stained to imitate darker and more expensive varieties, but more legitimately to improve the natural appearance by heightening and bringing out the original markings, or by giving a definite color without covering the surface and hiding the nature of the material by coats of paint. The best woods for staining are those of close, even texture, as pear and cherry, birch, beech, and maple, though softer and coarser kinds may be treated with good effect. It should be dried, and if an even tint is desired, its surface planed and sandpapered. All the stains should, if possible, be applied hot, as they thus penetrate more deeply into the pores. If the wood is to be varnished, and not subjected to much handling, almost any of the brilliant mordants used in wool and cotton dyeing may be employed in an alcoholic solution; but when thus colored it has an unnatural appearance, and is best used in small surfaces only, for inlaying, etc. The ebonized wood, of late years so much in vogue, is in many respects the most unsatisfactory of the stains, as the natural character and markings are completely blotted out, and it shows the least scratch or rubbing.

The common ebony stain is obtained by preparing two baths; the first, applied warm, consists of a logwood decoction, to every quart of which 1 drachm of alum is added; the seconds is a solution of iron-filings in vinegar. After the wood has dried from the first, the second is applied as often as is required.

For the first named bath, some substitute 16 weight parts of gallnut, 4 of logwood dust, and 2 of verdigris, boiled in a sufficient quantity of water. The writer has seen a peculiar method of blackening walnut in use in Nurnberg. On one of the Pegnitz islands there is a large grinding-mill, turned by that classic stream, where iron tools are sharpened and polished. The wood is buried for a week or more in the slime formed by the wheels; when dug out it is jet black, and so permeated by silica as to be in effect petrified. Another way to ebonize flat surfaces of soft wood is to rub very fine charcoal-dust into the pores with oil. This works beautifully with the European linden and our own white-wood.

A brown mahogany-like stain is best used on elm and walnut. Take a pint decoction of 2 oz. logwood, in which ½ oz. of chloride of baryium has been dissolved. This gives also, when diluted with soft water, a good oak stain to ash and chestnut. But the most beautiful and lasting of the browns is a concentrated solution of permanganate of potash (mineral chameleon). This is decomposed by the woody fibre, and forms hydrated oxide of manganese which is permanently fixed by the alkali.

A simpler brown wash is ½ oz. of alcanna root, 1 oz. aloes, 1 oz dragon's-blood, digested in 1 lb. of alcohol. This is applied after the wood has been washed with aqua regia, but is, like all the alcoholic washes, not very durable. Aqua regia (nitro-muriatic acid), when diluted in three parts of water, is in itself a much used, though rather destructive, yellow. For a red stain, a decoction of ¼ lb. of logwood and ½ oz. of potash in 1 lb. of water is used as the bath, being fixed by a wash of alum-water. For scarlet, use 1 oz. cochineal, 6 oz. powdered argol, 4 oz. cream of tartar in 12 oz. of chloride of tin (scarlet spirits). For rose color, iodide of potassium 1 part, water 12 parts, as a first bath; as second, chloride of mercury (corrosive sublimate) 1 part, water 40 parts. Indigo solutions give blue washes, and 1 part of verdigris to 4 parts of water the best green. Soft wood floors are well stained with ½ lb. turmeric, ¼ lb. logwood, 22 lbs. soap-boiler's lye, ¼ lb. potash, to which, after it has been boiled down to about 14 lbs. weight, 1½ lb. wax and 2 oz. of annotto are added. This is largely used in Germany as a substitute for paint, and keeps the floor in good condition for a year or more. As a curiosity, the bleaching of mahogany to the appearance of chestnut may be mentioned. This was once done to make a dining-room table match the other furniture of a room in which it was placed, and was effected by alcohol saturated with sulphurous acid gas. A solution of 4 oz. of sandarac, 1 oz. gum mastic, and 4 oz. shellac, in 1 lb. of alcohol, to which 2 oz. oil of turpentine is added, can be recommended as a varnish over stained woods. Boiled linseed oil should be rubbed into the pores before it is applied.

JOSEPH T. CLARKE.

CORRESPONDENCE.

CONCERT GARDEN. — THE STARR BUILDING. — MUSEUM OF SCIENTIFIC INDUSTRY. — THE EAST RIVER BRIDGE APPROACHES. — REMODELLING LOWER NEW YORK. — NEW POLICE STATION.

NEW YORK.

BROOKLYN is to have a summer garden and music hall somewhat on the plan of Gilmore's Garden, New York. It will be named the Mozart, and is to cover an area 50 x 150 feet at the corner of Fulton and Smith Streets; the front on the former street. The exterior of the building is to be in Colaberg brick. In plan, for a distance of 30 feet back, the entire front will be turned into a vestibule; here will be the bars, lunch-counters, cigar-stands, etc.; over this apartment a gallery is to be arranged, looking down upon the garden proper, which has an arched roof 40 feet high, and covering an area 120 feet long by 50 wide. Three entrances will open from the Smith-street side. The floor will have gravel-walks, shrubbery, and grass, with tables and seats to accommodate 2,000 people. Vases with exotics, hanging-baskets, and cages with song-birds, will be liberally provided. The ventilation will be carefully looked after. Fred H. Coles is the architect, and expects to finish the whole at a cost of less than $50,000, including a short tower at the street-angle. If these winter gardens or city summer resorts are to become common, it might be well that some more intelligent treatment than the present building of barns with curved roofs should be adopted.

Mr. George E. Harney's new Starr Building at Broadway and Twenty-fifth Street promises to be a genuine treat. In style, its pilasters and curved-headed windows, balustrades, and quaint bits of treatment recall the English mode of a century ago. It is but an alteration, an extension of the building up to the street-line, with the necessary building of a new façade. The material will be Philadelphia brick, white putty joints, with Newark-stone finish; of this last but little is used, some very good effects being secured by fancy brick-laying. There are four stories with a high basement. The front, 28 feet wide, is divided into three bays by pilasters. The windows will be of plate-glass below, with the upper parts filled in with stained glass in a variety of patterns. The window-openings are covered with flat brick arches, and the general effect is more like a private house than an ordinary store-front. The height to top of the brick parapet above cornice is 68 feet; and, with the exception of a false cornice or heavily-moulded belt-course on the line of the fourth floor beams, which Mr. Harney may unfortunately be compelled to put in metal, the front may be commended as an example to the architect-builders who pile up heaps of meaningless iron and brick along our thoroughfares. Within, Mr. Harney hopes to put in some solid wood panel-work.

Mr. Nelson L. Derby, one of the younger architects of the city, has an honest piece of brick and stone work in the St. John's Hospital, to be erected in Brooklyn by the Episcopalians. It is a small hospital of about one hundred beds, with a chapel so arranged that the ends of the several wards open into it, and admit the sounds of the organ and the service to the patients in their cots. There are three wards, one over another, with the first

floor below cut up into private rooms. The plan pursued at St. Luke's, in this city, of having an outside corridor along the north side of the ward will be followed at St. John's. This corridor not only cuts off the bleak north winds, but affords a passage and secures additional privacy to the ward proper. As yet the plan is somewhat unsettled, although at the special request of the bishop, a few yards of masonry were laid, and a corner-stone provided and laid on last St. John's Day, although it is likely that the stone may be shifted. The object of the bishop, in calling attention to the project and stimulating subscriptions, was gained by the ceremony.

The Vaux scheme for a great museum of scientific industry has received several severe newspaper kicks, and finds nobody anxious enough for its establishment to get up any enthusiasm this hot weather. One layman's proposition is to roof in the aqueducts, and convert them into drill-rooms for the use of the militia. They are far more likely to remain as monuments of New York's financial unwillingness, or more correctly inability, to pay for their removal.

The greatest work of the season, which has engaged the attention of our New York architects, is that on the Approaches to the New York and Brooklyn Bridge, which have been finally decided upon. The plan pursued by the Bridge Company managers was to have designs prepared by Mr. Collingwood, the resident engineer, and by his several associate engineers; in fact, a limited competition within the office. Upon this work they have been engaged during a greater portion of the winter. Mr. Collingwood made his study as plain and unambitious in matters of detail as was possible. He depended upon the mass and the necessary constructive adjuncts to give an architectural character, without adding features not absolutely called for as part and parcel of the bridge construction. The other designs showed an endeavor at architectural effect beyond that growing out of a strict adherence to constructive demands, and they were so far false and weak. About two months ago, all the designs were submitted to an advisory commission, consisting of Joseph M. Wilson, a Philadelphia architect, George B. Post, and Napoleon Le Brun of this city. It was a carefully chosen commission, well qualified for the work laid before it, which was to determine upon such modifications of the engineers' designs, or substitutes therefor, as should embody a correct architectural expression with the rigid requirements of the engineering part of the work. It was a supplementary commission, to add grace to strength, beauty to utility. After close inspection and comparison, one of the designs prepared by Mr. Collingwood was taken as a basis of operations. On the New York side, from the river face of the anchorage to the outlet upon the street level at Chatham Street, the length is 1,548 feet, and in width 100 feet. The general design is a series of arches occupying the spaces between the several streets, over which the approaches pass by means of flat iron bridges.

It is the intention of the bridge managers to utilize these arched spaces below the roadway as storehouses and warerooms for heavy merchandise. Starting from Chatham Street, the Approach first passes over North William and William Streets, at a comparatively low elevation; and a change of grade will probably be made to accommodate the low headway of the flat bridges. A series of ten arches, of gradually increasing size, brings it to Rose Street; six more arches, and Vandewater is passed; five arches and Cliff Street is reached; and with four more arches the wide span of Franklin (139 feet) is passed, with an iron construction, now at a good height; one more large arched opening, and the anchorage face concludes the shore work; beyond that, the cables carry the road-bed up to the New York pier, and thence over the river span. The bulk of the material is of granite; quoins, base courses, voussoirs, and cornice, with balustrade above being in tooled work, as will also be the flat pier buttresses flanking the several street openings; the actual bearing-arches and vaults below are to be in brick, struck on semicircles, while the outer arches will be struck from a double centre, the general style being Florentine, without much elaboration of detail. The arched spaces will of course have all degrees of capacity; the smaller spaces near the ends of the road-bed will be used for the accommodation of the machinery which is to be employed in the working of the cars back and forth over the bridge. The arches range from fifty-five feet in height down to ten feet, or less; and in width from 28 feet downward. The want of parallelism of the streets compels the use of skew arches, and the work is further lightened by the opening of intersecting arches.

On the Brooklyn side, the architectural treatment is very similar; but the engineering difficulties, with changes of grade and irregular streets, make the arching below the road-bed resemble a complicated bit of mediæval vaulting. The length of the approach here is about nine hundred feet; and as on the New York side, the arched spaces will be used for warehouse purposes, iron floor-beams being carried across where the arches are high enough to make several stories. The cost of the entire work will reach two and a quarter million dollars.

The architects are promised a rich harvest if the aldermen can but carry out their notion of remodelling the metropolis. It reads almost like a burlesque; but Alderman Sauer, in private life proprietor of divers "beer tunnels," sets forth at great length and much seriousness, that, —

"It is obvious that the capacity of very many of the streets of the city south of Houston Street is totally insufficient for the convenience of the vast and constantly augmenting volume of business daily transacted;" that they are "narrow, tortuous, and laid out without system or regularity, with a view to the accommodation only of the sparse population and comparatively insignificant business of this city a century or more ago, when Wall Street was its upper or northern boundary, Maiden Lane was a rural valley road, Nassau Street the 'Pie-woman's street,' Chatham Street a part of the original road to Boston, Division Street the dividing line or lane between the Delancey and Rutgers farms, Broadway above Wall Street was a country road leading to the 'Commons,' and Greenwich Street the shore road leading to a small village; and the intersecting roads or streets were laid out and established as the wishes and interests of the individual owners of the land through which they passed dictated, and without any regard to their uses by the people generally or for business purposes." It was further declared that "unless ample provision is made to accommodate and facilitate the business that centres on these lines of travel and avenues of trade and traffic, new locations will be selected outside of our city limits. . . . The business that cannot be transacted here will betake itself to other locations." It was declared to be "fortunate perhaps," that under section 105 of the new charter of 1873, the Board of Street Openings and Improvements, consisting of the Mayor, Comptroller, Commissioner of Public Works, President of the Department of Parks, and the President of the Board of Aldermen, are vested with the authority "to begin at once a project for improving the lower part of the city."

The resolutions accompanying the preamble requested this Board "to meet as soon as convenient and take into consideration the propriety of laying out anew all that part of the city south of Houston Street; the project to include the widening of the streets fronting the water (West, South, and other streets) sufficiently to provide for the convenient transaction of the immense freight, passenger, and other business of our water-front for all time to come; to provide for the laying out of a continuous avenue or 'boulevard' around that part of the city at a convenient distance, say three hundred feet, from the streets fronting on the water, and one or two wide avenues or boulevards through or near the centre of the island, connecting all such new avenues or boulevards with some of the avenues established by the Commissioners appointed under the act of 1807 for laying out the city north of North (now Houston) Street, utilizing existing streets and avenues where possible in the construction of the proposed new thoroughfares; that in this new scheme the error committed by the commissioners in 1807 in laying out wide avenues, running lengthwise of the island, at great distances apart (from six hundred to nine hundred feet), and streets running crosswise of the island every two hundred feet, be avoided, and with the exception of the new avenues or boulevards above alluded to, reverse the system then adopted by laying out wide streets, at less distances apart, crosswise of the island, or from east to west; and streets not more than two hundred feet apart, lengthwise of the island, from north to south. The width of such streets to be as determined upon by the Board of Street Openings and Improvements."

Another resolution provided that the Board, if it deemed advisable, obtain the sanction of the people of the city before undertaking a work of such magnitude, by submitting the question to them for their approval or rejection at the next or subsequent general election. The whole matter was referred to the Committee on Streets.

Before these budding Barons Haussmann begin their grand work, a sober second thought will no doubt bring the reflection that while all this grandeur is being carried out, New York will be lost forever, and what commercial power she does possess will be most thoroughly stamped out, and a bankrupt plain of dilapidated houses alone remain to mark the spot where once stood the Empire City.

The police of the city have just acquired a new station-house. It stands on Fifty-first Street near Third Avenue, and has been talked of as a model of its class. The plat measures 35 x 100 feet. The station proper is five stories in height, and runs back 62 feet, with an air-shaft on either side, giving the plan a dumb-bell shape. The jail building, which measures 28 x 30 feet, fills the rear end of the lot. On the first floor, besides the public office, are the captain's and sergeants' private rooms, and a general waiting-room, which, with two great sinks, answers as well for a general washing-room for the officers. Above this floor, the plan is repeated on each story of a large dormitory, front and back, with a small double-bedded room opening off the hall. Thus accommodations will be furnished for 105 men and officers. The finish throughout is of pine oiled and varnished, the wainscoting running high and filled in with narrow stuff set diagonally. A peculiarity is, that, above the first floor, the building is utterly unprovided with either water or heating facilities. This was by express orders of the police. The prison is a low, brick, fire-proof building, extending across the rear of the lot: an open slat-work bridge from the first floor of the main building leads to the second floor of the prison, while outside stairways lead down to the lower story of the prison and up to the vagrants' lodging-rooms above. From heavy bearing walls, the floors are carried on iron beams filled in with brick. The floors and ceilings are then lined with one-quarter inch boiler-iron plates carefully jointed. The cells are built up in the same way, except that the plates are set double and filled in with brick. The cells measure each 4 feet 4½ inches by 8 feet deep by 9 feet high. The entire fronts are of one-inch iron bar crib work, half the space being occupied with the door in the same style. A specially constructed Yale lock will relieve the jailer from carrying the great key, which has heretofore been looked upon as the mark of his office. There are twenty cells, each one having water accommodations and a broad wooden plank for a resting-place. The lodging-rooms provided for the tramps are one chamber 14 feet 8 inches by 19 feet for males, and another 13 feet 6 inches by 19 feet for females. The floors slope to a trap at the centre, and, with the hard lining, will permit the rapid cleaning of the whole place by a liberal use of a hose and a good head of water. Exteriorly the red brick and granite finish remind one of the *Tribune* building; but across the building, sixty feet from the curb, at the line of the fifth floor beams, a meaningless cornice is carried. It was intended, no doubt, to break the height and relieve the impression which would otherwise be given of stiltiness. The building will cost about $50,000.

OIL LAMPS. — The *Building News* asks why the use of oil lamps has been prohibited in Trinity College, Cambridge.

THE VICTORIA DWELLINGS.

ON Saturday last, the Earl of Beaconsfield opened the blocks of dwellings at Battersea, erected by the Metropolitan and Laborers' Dwellings Association, which, at the desire of her Majesty, are for the future to be known as "The Victoria Dwellings."

The buildings comprise three blocks, containing 456 rooms; viz., one block for artisans' dwellings, in self-contained tenements of three, four, and five rooms each, and which contains 98 such tenements, and it is supposed will house about 500 persons; and two blocks for laborers' dwellings, containing 152 rooms, to be let as single rooms, or in sets of two or three together, and will, it is supposed, house about 350 to 400 persons. Laundries are provided in separate buildings for use of inmates in rotation as may be arranged by the resident superintendent from time to time.

The object proposed to be attained is to give the tenants the utmost space and convenience in their dwellings that is possible, having regard to the weekly rents they may be, according to their class, able to pay, while still providing a sufficient return for the money invested by the shareholders. It should be remembered that the chief object of the association is to provide for that large class of laboring operatives who are below the artisan class. The areas of floor and cube space in each room of the artisans' block of dwellings at Battersea are in excess of those for a similar class erected by the best of similar societies, and therefore the rents obtained should be at a somewhat higher rate. They have been fixed, therefore, at a very slight increase; and no difficulty has been found on this account in obtaining good tenants.

In the artisans' tenements the sitting-rooms have an area of about 150 feet each; the bedrooms about 100 feet each, and are eight feet clear in height. The kitchens are supplied with water supply, coal-bins, shelves, and necessary closets and fittings, and open into balconies. A w.c. is provided for each tenement, approached only from the open-air balcony, and with special cistern service and constant supply of water. In the laborers' tenements the rooms are of various sizes, from 85 feet to 180 feet superficial floor area, so arranged as to be capable of combinations of two or three to be let together if desired, and having a clear eight feet in height. All the larger rooms are fitted with sink and water supply, and closets for coals and stores. The w. c.'s in these blocks are approached from a passage transverse to the building and open at both ends, of easy access to the staircases on each floor, thus insuring separation from all dwelling-rooms, and a constant free current of air. Dust-shoots are provided on all floors of all the buildings. None of the rooms or suites of rooms have windows overlooking any other suite.

The staircases to the artisans' tenements are all placed at the back of the blocks fronting to thoroughfares, so as to give the full advantage of front windows to all the rooms. In passing from the staircases to the entrance-doors of each suite, no room-window is passed, and thus perfect privacy is obtained to all rooms of every suite. All the w.c.'s are shut off from the suites, and have a covered access, but through the open air, and all have windows to the open air; all are separately supplied with water-services, instead of trusting to the overflow from the adjoining scullery sink, as is done in buildings of a similar description to these, but with very unsatisfactory results as may be supposed; they are divided by brick walls (not wooden partitions only) from the dwellings, and are fitted with an excellent strong and simple apparatus, specially contrived by Mr. George Jennings of Palace Wharf, Lambeth, and which is much superior to the common pan-apparatus used in general. They are also all fitted with a separately-hinged cover, so that they may be used as slop-sinks by raising the cover; and thus cleanliness, when they are so used, can be insured.

The living-rooms are fitted with cooking-ranges having oven and boiler for hot water attached, instead of range and oven only as is frequently the case; hot water can thus be always had without lighting a second fire under a copper in the scullery, as is elsewhere necessary, and is complained of by tenants as expensive to them in fuel, and also as being less convenient.

Separate ranges of wash-houses for the sole use of tenants, and drying-grounds, are provided. In the dwellings of some kindred associations, the tenants wash in their rooms and dry on the flat roof of the buildings. Washing in rooms is, however, strictly forbidden at Battersea, being thought prejudicial to the health of the adults and children living in the rooms, besides occasioning dirt and inconvenience.

All drains are of course taken outside of the buildings; they are not directly connected with the sewer, as is too common with even the best London houses, but are all intercepted by a specially-contrived earthenware cess-trap, patented by Mr. George Jennings, which is open to the air and admits of being easily inspected and cleaned out from the surface. There is no direct connection between the waste-pipes from the sinks and the drains. All the soil-pipes of w.c.'s are open to the air, being taken above the roofs of the buildings. Thus all chance of sewer-gas finding its way into the dwellings is obviated as far as is practicable. All windows are made to open top and bottom as sashes, thus insuring ventilation when desired by the inmates.

The rooms are all rectangular, without projections or irregularities of shape, thus insuring the advantage of the floor area of the rooms to the fullest extent. Constant supply of water has been arranged for, so that the cisterns are always full. Balanced self-closing taps are fitted to all sinks to prevent waste from taps of the ordinary sort which may be left running. All the sinks are of galvanized iron. All passages and staircases are lighted by gas from lanterns so contrived in the thickness of the staircase-walls as to be out of risk of damage, and which light the stairs on one side and the landings on the other. Gas is not laid on to the rooms. All staircases and passages are wholly of fire-proof material.

All the buildings have been designed by Mr. Charles Barry, F.S.A., President R.I.B.A., who is the architect to the association.

The blocks of laborers' tenements referred to in the description consist of buildings in two parallel ranges — facing each other, and designed on what is called the balcony system; that is to say, balconies carried by iron columns run along the front of each range, and give access from the staircases to the different tenements. These blocks are four-storied, substantially built of stock bricks with one or two bands of a lighter color; they have projecting eaves, and are tiled with Mr. John Taylor's patent tiles. In general character and in arrangement they do not differ widely from what has already been erected on the balcony plan by other companies; and perhaps the chief distinction between them and some existing dwellings which are acknowledged to be successful is, that the closets are more immediately within reach, a circumstance which is both an advantage and a disadvantage. The rooms are plastered and papered; they have grates and ranges which appear to have been made purposely, as they bear the monograms of the association, and in which the metal is somewhat lighter than we should have preferred for the purpose. The railings of the balconies have also apparently been cast to a design, and are neat but not elaborate. The window heads and sills and treads of stairs appear to be of Mr. Allen's material (concrete made with Portland cement and a proportion of breeze), or something very like it; and the windows, which are sashes double hung, have all of them a contrivance which, if we mistake not, Mr. Allen was the first to introduce, for the protection of flowers grown in pots on the window-sill. The lower sash is divided, and the lower part of it is not hung, though it can be raised when wished, while the upper part fits on to the lower one with a rebated joint. Of course there is considerable risk of leakage at this joint if the window be in an exposed situation; but for its purpose, viz., a protection to outside window-gardens, the contrivance seems well suited.

In the block containing what are called the artisans' tenements we meet with more novelty. The buildings are similar to those just described in material and roofing, and are also four-storied, but there is no balcony. They form a hollow square, a somewhat undesirable arrangement, and the tenements are approached from open staircases not dissimilar to those in many of Sir Sydney Waterlow's buildings. The greatest peculiarity, and one to which serious objection was taken by some of those who examined the dwellings on the opening day, is that each of the blocks of which the quadrangle is composed is divided by a wall running from end to end in the direction of its length, and almost entirely without openings, so that at no point can the air blow through from front to back. In fact, the buildings consist of a series of small "back-to-back" tenements. We are not disposed to lay very great stress upon this defect, as it is to a large extent neutralized by the happy arrangement of the plan with regard to closets, etc., and by the ample size of the windows. Still the facts remain that from each landing of each staircase access is obtained to two tenements looking inwards towards the quadrangle, and to the others looking outwards, the tenements are back to back, and that their centre is a quadrangle. The danger, if that exist, due to the said causes, might be to some extent remedied, and with great ease, by making the staircase open from back to front; and were this done, the objection which exists to all quadrangles surrounded by lofty buildings of uniform height, namely, that they are very apt to become full of stagnant air, would, to no inconsiderable extent, be overcome; while that to the back-to-back arrangement would be, at any rate, diminished.

The arrangement of one of these three-roomed or artisans' tenements is, that it is entered by its own distinct outer door from the landing, giving access to a short passage. Out of this opens first the scullery, and then the bedroom; and at the end of the passage is the living-room. The closet is reached from the scullery. The floor area of the rooms will be found in the description already alluded to. Each of them has a fireplace. In the long room is a cupboard, in the scullery a coal-bunk and a cast-iron sink, and each has one sash window of the sort already described. The best feature of the plan is the approach to the closets. This is managed with much simplicity; so that, at a very small sacrifice of space, a lobby, more or less open to the external air, is passed in going from the scullery to the convenience, and the entrance of foul smell from the closet is cut off in a very effectual manner. — *The Architect.*

A NOVELTY IN COMPETITION. — The Ayr (Eng.) Town Council, in the competition for the new town hall, intend to give a premium of £25 to each architect whose design is rejected, while the accepted design is paid for in the usual way. It is barely possible that this may prove a somewhat costly competition for the town of Ayr.

NOTES AND CLIPPINGS.

ART STUDENTS' LEAGUE. — The Art Students' League will re-open its several schools of art on the first Monday in October next. The facilities for art study provided in these schools, which are supported wholly by the students of New York, are as follows: Three life classes daily and a school in portrait-painting, together with composition and sketch classes, are kept in continuous operation for eight months of the year. In addition to these lectures on anatomy, perspective, and composition, will be given during the coming season; and new classes will be formed, with increased hours for study, as rapidly as the attendance will warrant. The League classes already afford greater opportunities for study in the higher branches of art than have been supplied hitherto by any schools in America; and the students aim to establish permanent schools with advantages similar to those of Europe. Mr. Walter Shirlaw has been engaged as professor of drawing and painting for the coming year. Application for admission to the classes or membership may be made to the secretary, No. 108 Fifth Avenue. The president of the League is Mr. Frank Waller.

A NEW CATHOLIC COLLEGE. — The building for the new Catholic College at Jersey City will be built on four lots, 102 feet deep, adjoining St. Peter's Church. The building facing the street will be used as a residence for the fathers and the college professors and tutors, and will have a frontage of 193 feet and a depth of 30 feet. The college building in the rear will form a T, and will be 53 feet by 65 feet in dimensions, with a yard on each side 17 feet wide. The buildings will be five stories in height, with a basement built of Philadelphia brick, relieved in front with Newark brown stone. The residence will have an entrance in the centre, one on the east side for students, and one on the west side for guests. The chapel will be on the second floor of the college, with the library over it on the third and the museum on the fourth floor. The refectory will be in the basement of the residence; and the floors above the president's room and parlors will be divided into sleeping-apartments. The class-rooms will be in the college building. The college and residence will be separated by a corridor, and the residence will be connected with the vestry-room of St. Peter's Church. The plans were drawn by Mr. L. O'Connor.

A NOVEL AMERICAN EXPORT. — It is said that Jabez W. Abbott, employing mason of Passaic, has received orders from R. Neill & Sons, builders of Manchester, England, to send between 200 and 300 skilled carpenters and joiners to Liverpool. Every man must have a complete kit of tools. Steady work is to be guaranteed to good men. Wages are at the rate of 8½*d.* an hour; fifty-one hours a week is the working time. Of 150 masons who went over last year, only six have returned to this country.

A RUSSIAN APPOINTMENT. — It is reported that Mr. J. J. R. Randall, a Rutland, Vt., architect, has decided to accept the position offered him by the Russian Government as superintendent of the construction of railroad bridges in the empire at a salary of $3,000 a month.

BRIDGES CONDEMNED. — The iron bridges just erected by the Canton (Ohio) Iron Bridge Company over the River Raisin, near Adrian, Mich., to replace those swept away by the freshet, fail to pass inspection. Prof. Davis, Engineer of the Faculty of Michigan University, declares them inferior to the specifications, and unsatisfactory if not unsafe.

A WISE DECISION. — At a late meeting of the New York Board of Health, a communication was received from the Board of Police in respect to a proposition from a firm of disinfectant manufacturers to disinfect the garbage and street dirt, with a mixture of carbolic acid and copperas, at the place of final deposit, and requesting the opinion of the Board as to whether the garbage and street dirt so treated is suitable for filling-in purposes within the city limits. The Board decided that the disinfection of the material with the preparation referred to renders it less offensive, and that it may be safely used in the filling-in of bulkheads and docks; but it cannot, they say, be safely used in localities likely at any time to be occupied by dwellings or factories.

THE PEABODY MUSEUM AT NEW HAVEN, CONN. — The first wing of the Peabody Museum at New Haven, opened a short time since, is built under the trust-deed of 1866. This gave to the Trustees $150,000 "to found and maintain a museum of natural history, especially in the departments of zoölogy, geology, and mineralogy." Two-thirds of the whole sum was to be for the building, $30,000 for a fund for care of the building and increase of the collection, and the remainder to be placed at interest for the completion of the building, after the construction of the first wing.

THE STONE-WORK OF THE CHICAGO CUSTOM HOUSE CRUMBLING. — It is stated that the stone of the Chicago Custom House, not yet completed, is already showing signs of time, and is crumbling and scaling. The fact is confessed by all who have any connection with the building, and it is feared that nothing can be done to preserve it. It is probable that the Smithsonian Institute will be applied to for the purpose of securing, if possible, some preservative for the stone.

PERFORATED BRICKS. — Bricks perforated with three holes, that the mortar may get a good hold, are being used in the construction of some buildings in Minneapolis, Minn.

BURNING OF DETROIT THEATRE. — The Théatre Comique was burned on the morning of July 23. The loss is $10,000: fully insured.

THE RETORT COURTEOUS. — Madame de Stäel's apothegm that architecture is frozen music has been returned in kind by Herr Hegel, who calls music "architecture transferred from space to time."

AN OBSERVATORY DOME. — The authorities of the College of New Jersey, at Princeton, in that State, have decided to substitute a wooden dome for the present iron structure upon their astronomical observatory, because of the confusion of magnetic currents occasioned by that material. It was agreed that a boat-builder would be the best person to make it, as it is to be composed of lap-work; and Mr. James Beetle, a veteran boat-builder of New Bedford, Mass., has already begun upon the model. The dome is to revolve on iron balls, operated by machinery whose motion is regulated by a clock-work attachment. It will be constructed of oak, maple, chestnut, and cedar, copper fastened, and divided into equal sections by fourteen chestnut ribs, rising from the base at intervals of about four feet, and meeting at the top. The outside will be covered with cedar clapboards, showing four inches and lapping seven-eighths of an inch. The dome will be eighteen feet in diameter: the base, to a height of ten and five-eighths inches, is perpendicular.

THE DECORATION OF ST. PAUL'S. — In Harrison's "History of London" is the following statement unsupported by any quoted authority: "As Sir Christopher was sensible that paintings, though ever so excellent, are liable to decay, he intended to have beautified the inside of the cupola with mosaic work, which strikes the eye of the beholder, and, without the least fading of colors, is as durable as the building itself; but in this he was unhappily overruled, though he had undertaken to procure four of the most eminent artists in that profession from Italy."

FAILURE OF A BRIDGE. — On the 27th ult. a disaster similar to the one which recently occurred at Bath took place at Saltash, Eng., fortunately not causing loss of life. It being Coronation Day and also regatta day, the steamers running between Devonport and Saltash were crowded; and when the last steamer arrived alongside of the landing-stage, some hundreds of persons crowded at once upon the narrow wooden bridge which connected the stage with the shore. Their weight was sufficient to burst the bridge in two, and the impatient crowd were dropped into water which fortunately was not deep enough to drown them.

CHURCH TREASURE IN PARIS. — The City Tribunal of the Seine gave judgment recently in a suit to decide a disputed claim between the city of Paris and one of the churches as to the ownership of the furniture and treasure of the sacred edifices. In the loft at the Church of St. Gervais, in Paris, there had been lying for many years five pieces of ancient tapestry, forming part of a series representing the legend of that saint and St. Protais. The council of that sacred edifice recently sold these relics for a sum of $1,600 to a dealer in curiosities named Recappé; and the latter afterward disposed of a part of them to M. Camondo. The city of Paris, learning of what had been done, sent a letter to demand an explanation, but to which the council did not even reply, denying the right of the city to interfere in the domestic affairs of the church. The present suit was then instituted to have the tapestry restored, on the ground that the property belongs to the commune and not to the church, and that the latter has only the use of it, and not the right of disposing of it. A verdict in that sense was given: the church council was ordered to return the purchase money, and the present holders of the tapestry to give it up to the city of Paris.

RESTORING FRESCOES IN A FRENCH CHURCH. — There are some remarkable frescoes by Flandrin, in the Church of St. Vincent de Paul, Paris, which, having become defaced by accumulations of dust, are to be restored. M. Lemain, a well-known painter, has a number of workmen upon them, who are cleaning them with bread-crumbs. This fact recalls Sigalon's attempt to restore Michael Angelo's picture of "The Last Judgment" in the Sistine Chapel at Rome. He employed bread-crumbs; and this gave the cardinals, who were really opposed to the work, an opportunity to have it interfered with. The lower part of the picture was almost completely obscured with the smoke of the candles burning night and day in the chapel; and the artist's application for leave to restore them being supported by the French ambassador, consent could not very well be refused. The delivery of a quantity of bread for the purpose resulted in a riot, however, the mob protesting against being robbed and starved. This was made the occasion for a cessation of work upon the picture.

EXCAVATIONS AT ELEUSIS. — The Archæological Society of Athens, which during the last year has been occupied so successfully in the excavation upon the south side of the Acropolis, is understood to be making arrangements for the purchase of the villagers' houses now standing within the area of the great temple at Eleusis. If the arrangements prove satisfactory, excavations on a large scale will probably be begun next season. Among other plans spoken of at Athens, is the excavation of the east and north sides of the Acropolis.

PROTECTION AGAINST LEAD POISONING. — Workmen employed in the manufacture of white lead are always liable to lead poisoning, both by inhaling the dust and in touching the lead with the hands. Various correctives for this have been employed, and among these the latest and most simple is a careful washing of the hands in petroleum. Three washings a day are reported to be sufficient to prevent all serious danger of poisoning. The benzole in the petroleum is said to scour the skin and remove the dust of lead, and the fatty substance in the oil prevents the absorption of the lead salts. The experiments made with petroleum used in this manner give such good results that it is proposed to use the same material as a guard against poisoning in other industries where the salts of copper or mercury are employed.

WATER-TIGHT CEMENT. — It is said that a good waterproof cement is made by dissolving five parts of gelatine in hot water, and adding one part of chromate of lime. The cement must be kept in vessels which are well shielded from light.